USER'S MANUAL

PSB-601LF

Intel® Core 2 Duo
Full Size CPU Card
With VGA/Sound/2LAN

PSB-601LF M1

PSB-601LF Intel® Core 2 Duo
Full Size CPU Card
With VGA/ Sound/ 2LAN

OPERATION MANUAL

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This operation manual is meant to assist both Embedded Computer manufacturers and end users in installing and setting up the system. The information contained in this document is subject to change without any notice.

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CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for PSB-601LF. It also outlines the System specifications.

Section includes:

- About This Manual
- System Specifications
- Safety Precautions

Experienced users can skip to chapter 2 on page 2-1 for a Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our PSB-601LF Intel® Core 2 Duo Full Size CPU Card enhanced with VGA/Sound/2LAN, which is fully PC / AT compatible. The PSB-601LF provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters:

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, Sound utility, and Flash BIOS Update. It also describes the Watchdog-timer configuration.

Chapter 4 Award BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for 1 x PCI-E 16x BUS, 1 x PCI-E 1x BUS, 4 x PCI Bus and 1 x ISA BUS.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

1-2. SYSTEM SPECIFICATIONS

- **CPU (LGA775):**
  Intel® Celeron®-D, Pentium® 4, Pentium®-D, Core 2 Duo processor in mPGA775 Socket.
  2.8~3.8 GHz clock generator for Pentium 4
  1.86~2.66GHz clock generator for Core 2 Duo
  Front Side Bus 533/667/800/1066 MHZ.
  Auto detect voltage regulator.

- **CHIPSET :**
  Intel Q965 + ICH8DO+FWH

- **MEMORY :**
  Supports up to 4GB DDR SDRAM.
  Two 240-pin DDR2 DIMM sockets on board.

- **CACHE :**
  Built-in CPU.

- **REAL-TIME CLOCK :**
  Build in South Bridge.

- **BIOS :**
  Phoenix-AwardBIOS™ for plug & play function.
  8Mb with VGA BIOS.
  Easy update 1MB flash EEPROM.
  Support S/IO Setup.

- **KEYBOARD CONNECTOR :**
  Mini DIN connector.
  Selectable for keyboard, PS/2 Mouse, or Y-cable.
  One additional 5-pin external keyboard connector.

- **BUS SUPPORT :**
  One ISA/PCI Bus
  One Compact Flash Bus
  One MXM Bus

- **DISPLAY :**
  Built-in Intel Q965, support for CRT.
  Onboard 15-pin VGA D-SUB connector, support for resolution on SVGA Monitor.
  MXM module support

- **SATA INTERFACE :**
  4 SATA ports, support RAID 0,1,5,10.

- **SERIAL PORT :**
  Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs. COM1 for RS232; COM2 for RS232/422/485.

- **FLOPPY DISK DRIVER INTERFACE :**
  Support up to two Floppy Disk Drives, 3.5" and 5.25" (360K / 720K / 1.2M / 1.44M / 2.88M).

- **USB CONNECTOR :**
  Support up to four USB 2.0 ports.
  4 ports with external 2.54 connector 2x5-pin headpin.

- **LAN ADAPTER :**
  LAN 1: Marvell 88E8052 10/100/1000 Mbps Ethernet.
  LAN 2: Marvell 88E8052 10/100/1000 Mbps Ethernet.
  Supports Wake-on-LAN with ATX power.

- **SOUND :**
  Realtek ALC262A (HD Codec), including SPDIF.
  Fully Compliant HD Analog I/O Component
  16-Bit Stereo Full-Duplex Codec
  Four Analog Line-level Stereo Inputs for Connection.
  High Quality CD Input with Ground Sense
  Stereo Line-Level Output
  Interface: Line-In, Line-Out, Microphone, and CD Audio-In.

- **HARDWARE MONITORING FUNCTION :**
  Monitor Voltage, CPU temperature, & Cooling fan.
  If CPU Temperature is over setting, the buzzer will send out a warming (only under DOS system).

- **IRDA PORT :**
  5-pin Infrared port, support IrDA v1.0 SIR protocol

- **GREEN FUNCTION :**
  Controlled by hardware and software.

- **LED INDICATOR :**
  System power
  Hard Disk access

- **DMA CONTROLLER :**
  82C37 x 2

- **DMA CHANNELS :**
  7

- **INTERRUPT CONTROLLERS :**
  82C59 x 2

- **INTERRUPT LEVELS :**
  15

- **OPERATING TEMPERATURE :**
  0 to 60°C.

- **INPUT POWER REQUIREMENT :**
  ATX power: +5V, +12V, -12V, 5VSB.
  AT power: +5V, +12V, -12V.

- **BOARD DIMENSIONS :**
  338.5mm x 122mm, 13.33” x 4.8”

- **BOARD NET WEIGHT :**
  370 gram. (0.82lb)

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.

2. Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

HARDWARE CONFIGURATION

CHAPTER

2

*** QUICK START ***

Helpful information describes the jumper & connector settings, and component locations.

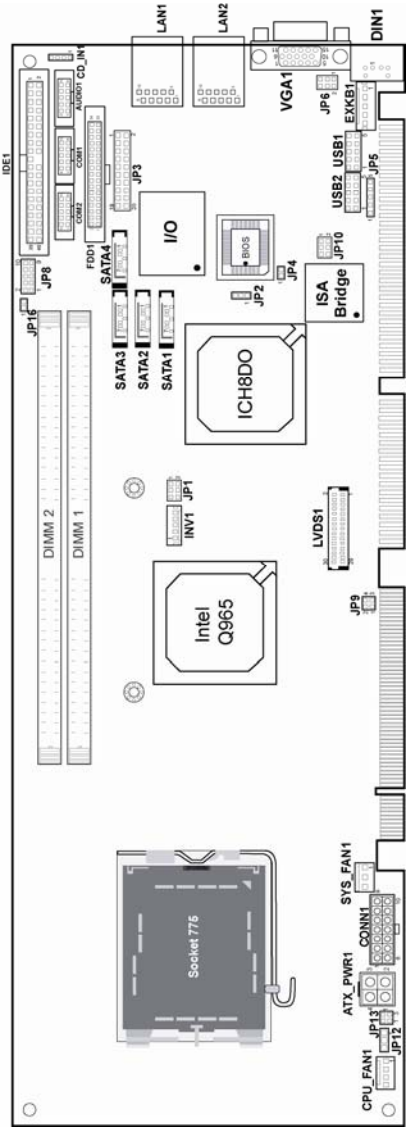
Section includes:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector	COM1, COM2
RS232/422/485 (COM2) Selection	JP8
Keyboard/ PS/2 Mouse Connector	DIN1
Keyboard/ PS/2 Mouse Selection	JP6
External Keyboard Connector	EXKB1
Reset Connector	JP3 (5, 7)
Hard Disk Drive LED Connector	JP3 (1, 3)
ATX Power Button	JP3 (6, 8)
External Speaker Connector	JP3 (14, 16, 18, 20)
PLED Connector	JP3 (2, 4)
KeyLock Connector	JP3 (13, 15)
External SMI Connector	JP3 (17, 19)
Clear CMOS Data Selection	JP2
CPU Fan Connector	CPU_FAN1
System Fan Connector	SYS_FAN1
Inverter Connector	INV1
Hard Disk Drive Connector	IDE1
VGA Connector	VGA1
Serial ATA Connector	SATA1, SATA2, SATA3, SATA4
Floppy Disk Drive Connector	FDD1
Universal Serial Bus Connector	USB1, USB2
IrDA Connector	JP5
LAN Connector	LAN1, LAN2
5VSB Connector	JP12
AT/ATX Power Selection	JP13, JP16
ATX Power Connector	ATX_PWR1, CONN1
Memory Installation	DIMM1, DIMM2
Reset/ NMI Selection	JP10
Sound Connector	AUDIO1
CD Audio-In Connector	CD_IN1
Compact Flash Card Master/ Slave Selection	JP4
PCI Slot 3.3V Voltage Selection	JP9
LVDS Connector	LVDS1
LVDS Voltage Selection	JP1

2-2. COMPONENT LOCATIONS



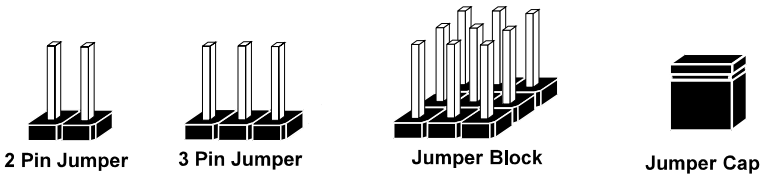
PSB-601LF Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "open" or "close" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

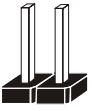
JUMPERS AND CAPS



If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

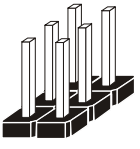
JUMPER DIAGRAMS

Jumper Cap looks like this

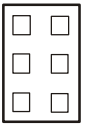


2 pin Jumper looks like this

3 pin Jumper looks like this

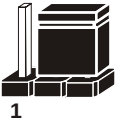


Jumper Block looks like this

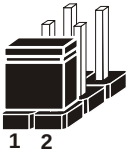


JUMPER SETTINGS

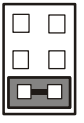
2 pin Jumper close(enabled) Looks like this



3 pin Jumper 2-3 pin close(enabled) Looks like this

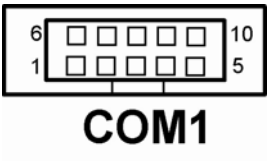


Jumper Block 1-2 pin close(enabled) Looks like this



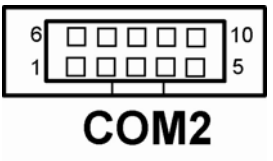
2-4. COM PORT CONNECTOR

COM1 : COM1 Connector
COM1 is fixed as RS-232.
The pin assignment is as follows :



PIN	ASSIGNMENT
1	COM1_DCD#
2	COM1_RX
3	COM1_TX
4	COM1_DTR#
5	GND
6	COM1_DSR#
7	COM1_RTS#
8	COM1_CTS#
9	COM1_RI#

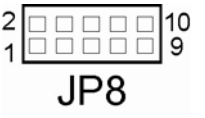
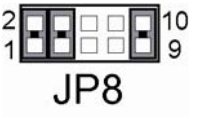
COM2 : COM2 Connector
The COM2 is selectable as RS-232/422/485.
The pin assignment is as follows :



PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	COM2_DCD#	TX-	TX-
2	COM2_RX	TX+	TX+
3	COM2_TX	RX+	RX+
4	COM2_DTR#	RX-	RX-
5	GND	GND	GND
6	COM2_DSR#	RTS-	GND
7	COM2_RTS#	RTS+	GND
8	COM2_CTS#	CTS+	GND
9	COM2_RI#	CTS-	GND

2-5. RS232/422/485 (COM2) SELECTION

JP8 : RS-232/422/485 (COM2) Selection
This connector is used to set the COM2 function.
The jumper settings are as follows :

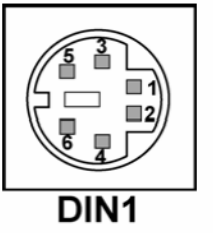
COM 2 Function	Jumper Settings (pin closed)	Jumper Illustrations
RS-232	All Open	
RS-422	1-2, 3-4, 9-10	
RS-485	1-2, 5-6, 7-8	

*** Manufacturing default -- RS-232.

2-6. KEYBOARD AND PS/2 MOUSE CONNECTOR

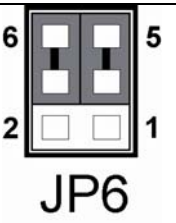
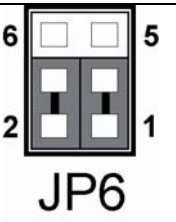
DIN1 : Keyboard or PS/2 Mouse Connector
DIN connector can support keyboard, Y-cable, or PS/2 Mouse, user may select the right device to used on "Keyboard or PS/2 Mouse Selection".
The pin assignments are as follows :

PIN	ASSIGNMENT	
	Keyboard	**PS/2 Mouse**
1	KBDATA	MSDATA
2	MSDATA	MSDATA
3	GND	GND
4	5VSB	5VSB
5	KBCLK	MSCLK
6	MSCLK	MSCLK



2-7. KEYBOARD OR PS/2 MOUSE SELECTION

JP6 : Keyboard or PS/2 Mouse Selection
For Y-Cable user, please set the jumper same as AT keyboard.
The jumper settings are as follows:

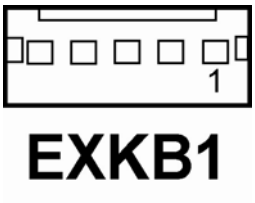
DEVICE TYPE	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	
PS/2 MOUSE	1-3 2-4	

*** Manufactory default -- AT Keyboard

2-8. EXTERNAL KEYBOARD CONNECTOR

EXKB1 : External Keyboard Connector
The pin assignment is as follows :

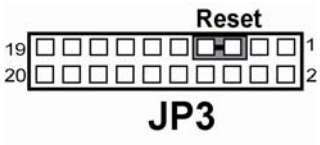
PIN	ASSIGNMENT
1	5VSB
2	GND
3	NC
4	KBDATA
5	KBCLK



2-9. RESET CONNECTOR

JP3 (5, 7) : Reset Connector.
The pin assignment is as follows :

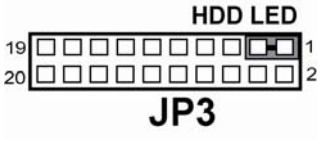
PIN	ASSIGNMENT
5	GND
7	RST_BTN



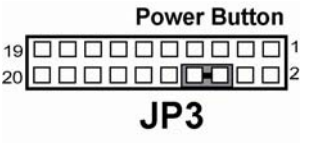
2-10. HARD DISK DRIVE LED CONNECTOR

JP3 (1, 3) : Hard Disk Drive LED Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
1	HD_LED+
3	HD_LED-



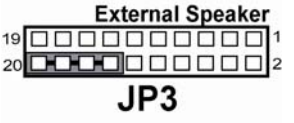
2-11. ATX POWER BUTTON



JP3 (6, 8) : ATX Power Button
The pin assignment is as follows :

PIN	ASSIGNMENT
6	PWRBTNSW
8	GND

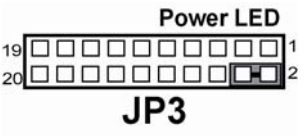
2-12. EXTERNAL SPEAKER CONNECTOR



JP3 (14, 16, 18, 20) : External Speaker Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
14	SPK_VCC
16	SPEAKER SIGNAL
18	SPEAKER SIGNAL
20	SPEAKER SIGNAL

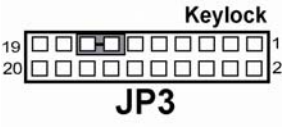
2-13. POWER LED CONNECTOR



JP3 (2, 4) : Power LED Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
2	PW_LED+
4	PW_LED-

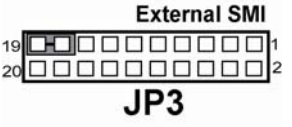
2-14. KEYLOCK CONNECTOR



JP3 (13, 15) : Keylock Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
13	KEYLOCK
15	GND

2-15. EXTERNAL SMI CONNECTOR



JP3 (17,19) : External SMI Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
17	SLP_BTN
19	GND

2-16. CLEAR CMOS DATA SELECTION

JP2 : Clear CMOS Data Selection
The selections are as follows :

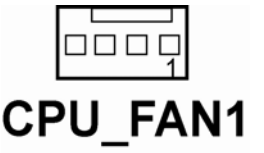
FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Normal	1-2	
Clear CMOS	2-3	

*** Manufacturing Default -- Normal.

Note: To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

2-17. CPU FAN CONNECTOR

CPU_FAN1 : CPU Fan connector
The pin assignment is as follows:



PIN	ASSIGNMENT
1	GND
2	VCC12
3	LPC1_FANIO1
4	LPC1_FANPWM1

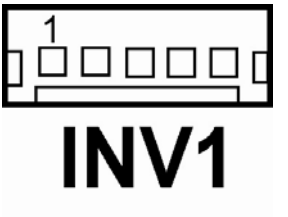
2-18. SYSTEM FAN CONNECTOR

SYS_FAN1 : System Fan connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	LPC1_FANIO2

2-19. INVERTER CONNECTOR

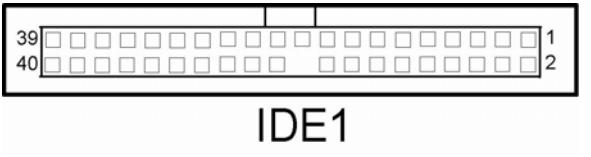
INV1 : Inverter Connector
The pin assignment is as follows:



PIN	ASSIGNMENT
1	+12V
2	GND
3	VCC
4	NC
5	ENABKL(Inverter backlight ON/OFF control signal)

2-20. HARD DISK DRIVE CONNECTOR

IDE1: Hard Disk Drive Connector

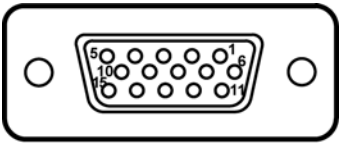


The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	NC
21	PDREQ	22	GND
23	PDIOW#	24	GND
25	PDIOR#	26	GND
27	PIORDY	28	PULL LOW
29	PDDACK#	30	GND
31	IRQ14	32	NC
33	PDA1	34	P66 DETECT
35	PDA0	36	PDA2
37	PDCS#1	38	PDCS#3
39	IDEACTP#	40	GND

2-21. VGA CONNECTOR

VGA1: VGA Connector



VGA1

PIN	ASSIGNMENT
1	GMCH_CRTRED
2	GMCH_GRTGREEN
3	GMCH_CRTBLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	GMCH_CRTVCC_L
10	GND
11	NC
12	GMCH_CRTDATA
13	GMCH_HSYNC
14	GMCH_VSYNC
15	GMCH_CRTCLK

2-22. SERIAL ATA CONNECTOR

SATA1, SATA2, SATA3, SATA4 : The PSB-601LF possesses four Serial ATA Connector. The pin assignments are as follows:

SATA1:

PIN	ASSIGNMENT
1	GND
2	SATAHDR_TXP0
3	SATAHDR_TXN0
4	GND
5	SATAHDR_RXN0
6	SATAHDR_RXP0
7	GND

SATA2:

PIN	ASSIGNMENT
1	GND
2	SATAHDR_TXP1
3	SATAHDR_TXN1
4	GND
5	SATAHDR_RXN1
6	SATAHDR_RXP1
7	GND

SATA3:

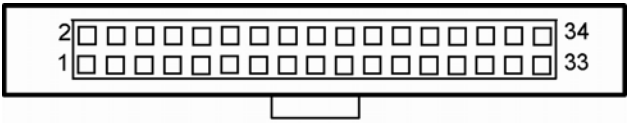
PIN	ASSIGNMENT
1	GND
2	SATAHDR_TXP2
3	SATAHDR_TXN2
4	GND
5	SATAHDR_RXN2
6	SATAHDR_RXP2
7	GND

SATA4:

PIN	ASSIGNMENT
1	GND
2	SATAHDR_TXP3
3	SATAHDR_TXN3
4	GND
5	SATAHDR_RXN3
6	SATAHDR_RXP3
7	GND

2-23. FLOPPY DISK DRIVE CONNECTOR

FDD1 : Floppy Disk Drive Connector
You can use a 34-pin daisy-chain cable to connect two-FDDs. On one end of this cable is a 34-pin flat cable to attach the FDD on the board, and the other side is attaches two FDDs.
The pin assignments are as follows :



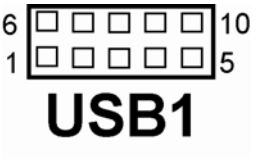
FDD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RWC#
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX
9	GND	10	MOA#
11	GND	12	DSB#
13	GND	14	DSA#
15	GND	16	MOB#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WD#
23	GND	24	WE#
25	GND	26	TRK0#
27	GND	28	WP#
29	GND	30	RDATA#
31	GND	32	HEAD#
33	GND	34	DSKCHG

2-24. UNIVERSAL SERIAL BUS CONNECTOR

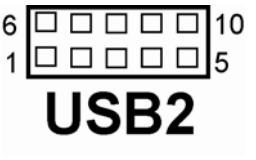
USB1: Universal Serial Bus Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	USB1_VCC5
2	USBN0_L
3	USBP0_L
4	GND
5	NC
6	USB1_VCC5
7	USBN1_L
8	USBP1_L
9	GND
10	NC



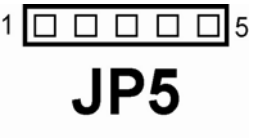
USB2: Universal Serial Bus Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	USB2_VCC5
2	USBN2_L
3	USBP2_L
4	GND
5	NC
6	USB2_VCC5
7	USBN3_L
8	USBP3_L
9	GND
10	NC



2-25. IRDA CONNECTOR

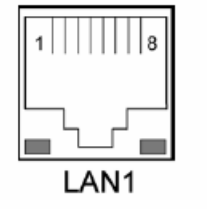
JP5: IrDA (Infrared) Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	+5V
2	NC
3	IRRX
4	GND
5	IRTX

2-26. LAN CONNECTOR

LAN1 : LAN Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	P1_MDIP0
2	P1_MDIN0
3	P1_MDIP1
4	P1_MDIN1
5	P1_MDIP2
6	P1_MDIN2
7	P1_MDIP3
8	P1_MDIN3

LAN LED Indicator:
Left Side LED

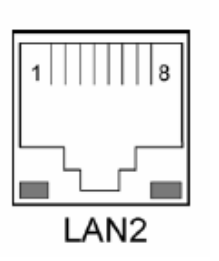
Green Color On	10/100 LAN Speed Indicator
Orange Color On	Giga LAN Speed Indicator
Off	No LAN switch/ hub connected.

Right Side LED

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

LAN2 : LAN Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	P2_MDIP0
2	P2_MDIN0
3	P2_MDIP1
4	P2_MDIN1
5	P2_MDIP2
6	P2_MDIN2
7	P2_MDIP3
8	P2_MDIN3



LAN LED Indicator:
Left Side LED

Green Color On	10/100 LAN Speed Indicator
Orange Color On	Giga LAN Speed Indicator
Off	No LAN switch/ hub connected.

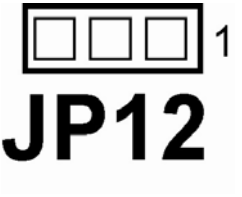
Right Side LED

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

2-27. 5VSB CONNECTOR

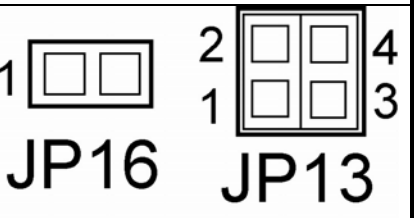
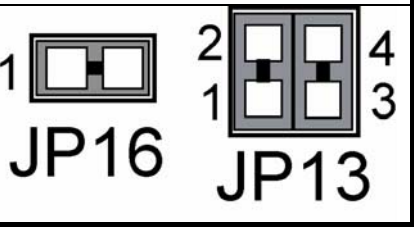
JP12 : ATX Power Signal Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	5VSB
2	GND
3	PS_ON



2-28. ATX / AT POWER SELECTION

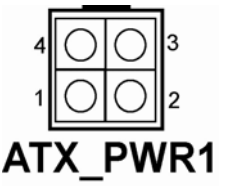
JP13 : AT / ATX Power Selection
The selections are as follows:

PIN	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
ATX	Open	
AT	Closed	

*** Manufacturing Default: ATX.

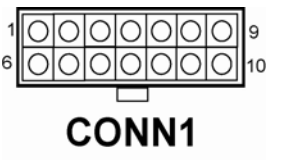
2-29. ATX POWER CONNECTOR

ATX_PW1 : ATX 12V Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	GND
2	GND
3	+12V
4	+12V

CONN1 : Power Connector
The pin assignments are as follows :



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC	6	5VSB
2	VCC	7	VCC
3	GND	8	GND
4	GND	9	PS-ON
5	+12V	10	-12V

2-30. MEMORY INSTALLATION

PSB-601LF CPU Card can support up to 4GB in two DIMM sockets.

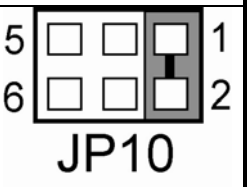
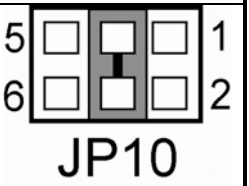
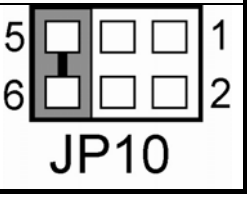
DRAM BANK CONFIGURATION

DIMM 1	DIMM 2	TOTAL MEMORY
256MB	256MB	512MB
512MB	512MB	1GB
1GB	1GB	2GB
2GB	2GB	4GB

2-31. RESET/NMI SELECTION

JP10 : Reset/NMI Watchdog Selection

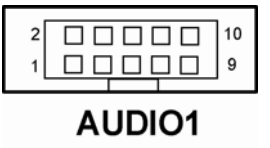
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RESET	1-2	
NMI	3-4	
CLEAR WDG	5-6	

***Manufacturing Default : Reset.

2-32. SOUND CONNECTOR

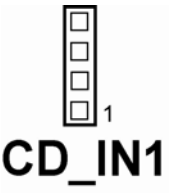
AUDIO1 : Sound Connector.
The pin assignments are as follows :



PIN	ASSIGNMENT
1	AC97_MIC-IN
2	AUDIO_GND
3	AUDIO_GND
4	AUDIO_GND
5	AC97_LINE-L
6	AC97_LINE-R
7	AUDIO_GND
8	AUDIO_GND
9	AC97_SPK-L
10	AC97_SPK-R

2-33. CD AUDIO-IN CONNECTOR

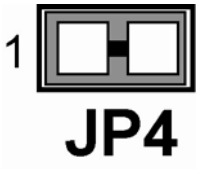
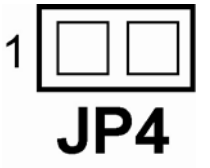
CD_IN1 : CD Audio-In Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	CD L
2	CDGND
3	CDGND
4	CD R

2-34. CF CARD MASTER/SLAVE SELECTION

JP4 : Compact Flash Card Master/Slave Selection.
The selections are as follows:

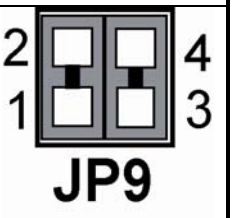
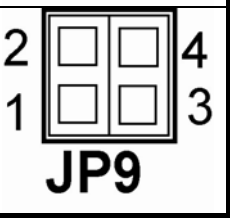
FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Master	1-2	
Slave	Open	

*** Manufactory default --- Slave.

🕮 Because ATA33 cable and ATA66/100 cable pin34 specification are different, therefore, while CF card and other devices are using IDE 1 channel at the same time, the ATA66/100 cable will make the device detecting time expand. Thus, it is suggested to use ATA33 cable to avoid the problem.

2-35. PCI SLOT 3.3V VOLTAGE SELECTION

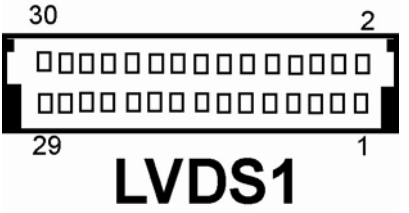
JP9 : PCI Slot 3.3V Voltage Selection.
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
3.3V from Mainboard	1-2 3-4	
3.3V from Backplane	OPEN	

*** Manufacturing Default: 3.3V from Backplane.

2-36. LVDS CONNECTOR

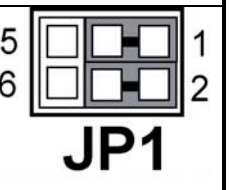
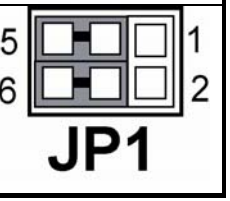
LVDS1 : LVDS Connector.
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	2	GND
3	CLKBM	4	CLKBP
5	GND	6	YBM2
7	YBP2	8	GND
9	YBM1	10	YBP1
11	YBP3	12	YBM3
13	YBP0	14	YBM0
15	GND	16	CLKAP
17	CLKAM	18	GND
19	YAP2	20	YAM2
21	GND	22	YAP1
23	YAM1	24	GND
25	YAP0	26	YAM0
27	YAP3	28	YAM3
29	LVDS_VCC	30	LVDS_VCC

2-37. LVDS PANEL VOLTAGE SELECTION

JP1 : LVDS Panel Voltage Selection.
The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
LVDS_VCC3	1-3 2-4	
LVDS_VCC5	3-5 4-6	

*** Manufactory default --- LVDS_VCC3.

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, Sound driver, and flash BIOS update. It also describes on how to configuration the watchdog timer.

Section includes:

- Introduction.
- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- Sound Driver Utility
- Intel® Chipset Software Installation Utility
- USB2.0 Chipset Software Installation Utility
- Watchdog Timer Configuration

3-1. INTRODUCTION

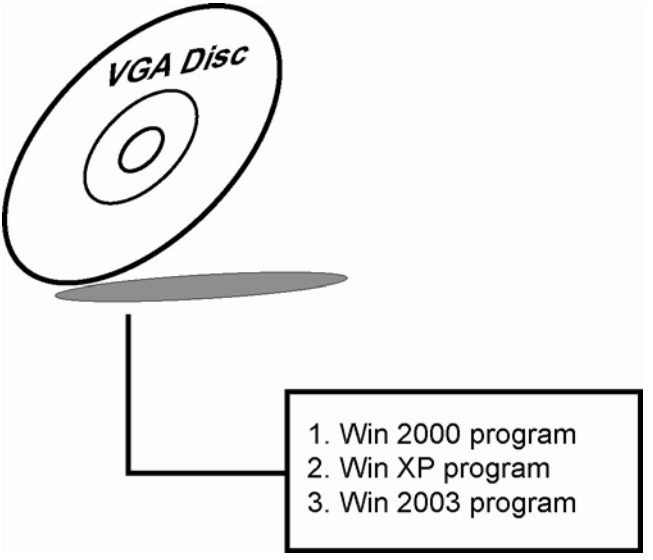
Enclosed with our PSB-601LF package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

Filename (Assume that CD ROM drive is D:)	**Purpose**
D:\Driver\VGA	Intel Q965 For VGA driver installation
D:\Driver\FLASH	For BIOS update utility
D:\Driver\LAN	For LAN Driver installation
D:\Driver\Sound	Realtek ALC262A Audio HD For Sound driver installation
D:\Driver\UTILITY	Intel® Chipset Software Installation Utility For Win 2000, XP,2003
D:\Driver\RAID	Intel® ICH8-R RAID Software Installation Utility For Win 2000, XP,2003
D:\Driver\USB 2.0	USB 2.0 Software Installation Utility For Win 2000, XP
D:\Driver\F6flpy32	Intel® ICH8-R driver used for FLOPPY when Install Win2000, XP,2003

🔔 User should remember to install the Utility right after the OS fully installed.

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our PSB-601LF can support a wide range of display. You can display CRT, PCI-E (SDVO) simultaneously with the same mode.



3-2-1. Installation of VGA Driver:

To install the VGA Driver, simply follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 2000/XP/2003 system, go to the directory where VGA driver is located.
3. Click **Setup.exe** file for VGA driver installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of PSB-601LF can use the program "Awdflash.exe" contained in CD ROM for BIOS update. This is found in D:\flash\Awdflash.exe.

3-3-2. To update BIOS :

(1) Install "Awdflash.exe" from the CD ROM Disk into your system.
(2) Insert the new BIOS file you have obtained from Protech.
(3) Type the pathname to Awdflash.exe and execute the BIOS update with file F601xxxx.bin
C:\UTIL\AWDFLASH\AWARDFLASH F601xxxx.bin
(4) The screen will display the table below:

AwardBIOS Flash Utility V8.69 (C)Phoenix Technologies Ltd. All Rights Reserved
For Broadwater-6A79LP69C-00 DATE : 01/16/2007 Flash Type - SST 49LF008A /3.3V File Name to Program : F601xxxx.bin
Message : Do You Want To Save BIOS (Y/N)

If you want to save up the original BIOS, enter "Y "and press < Enter > .
If you choose "N", the following table will appear on screen.

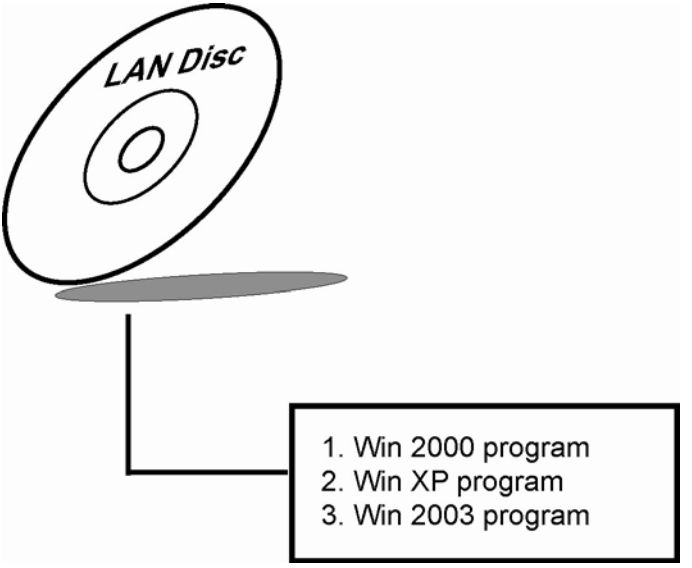
AwardBIOS Flash Utility V8.69 (C)Phoenix Technologies Ltd. All Rights Reserved
For Broadwater-6A79LP69C-00 DATE : 01/16/2007 Flash Type - SST 49LF008A /3.3V File Name to Program : F601xxxx.bin
Message : Press 'Y' to Program or 'N' to Exit

Select "Y", and the BIOS will be renewed. When you are refreshing your BIOS, do not turn off or reset the system, or you will damage the BIOS. After you have completed all the programming, you will see the line: "Reset System or power off to accomplish update process!". Please turn off or reset the system. Then the Flash BIOS is fully implemented.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

PSB-601LF is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:

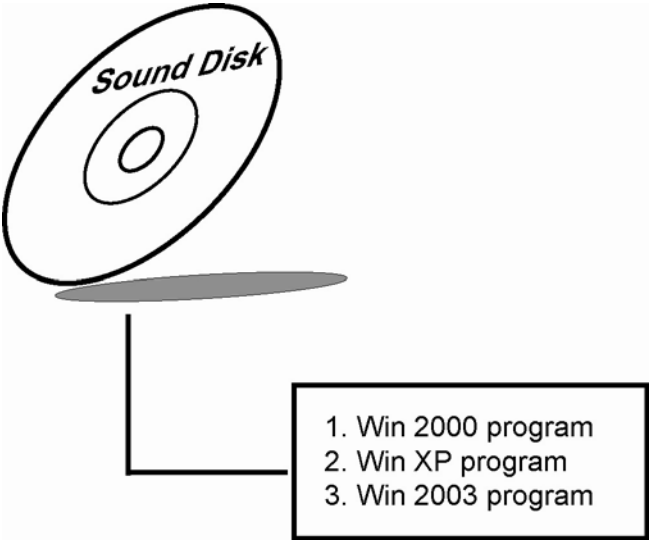


For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The Realtek ALC262A sound function enhanced in this system is fully compatible with Windows 2000 and Windows XP. Below, you will find the content of the Sound driver :



3-5-2. Installation Procedure for Windows 2000/XP/2003

1. From the task bar, click on Start, and then Run.
2. In the Run dialog box, type D:\Sound\path\setup, where "D:\Sound\pathname" refers to the full path to the source files.
3. Click on the OK button or press the ENTER key.
4. Click on the "Next" and OK prompts as they appear.
5. Reboot the system to complete the driver installation.

3-6. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-6-1. Introduction

The Intel® Chipset Software Installation Utility installs to the target system the Windows* INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI and ISAPNP Services
- AGP Support
- IDE/ATA33/ATA66/ATA100 Storage Support
- USB Support
- Identification of Intel® Chipset Components in Device Manager

3-6-2. Installation of Utility for Windows 2000/XP/2003

The Utility Pack is to be installed only for Windows 2000 and XP program.
It should be installed right after the OS installation, kindly follow the following steps:

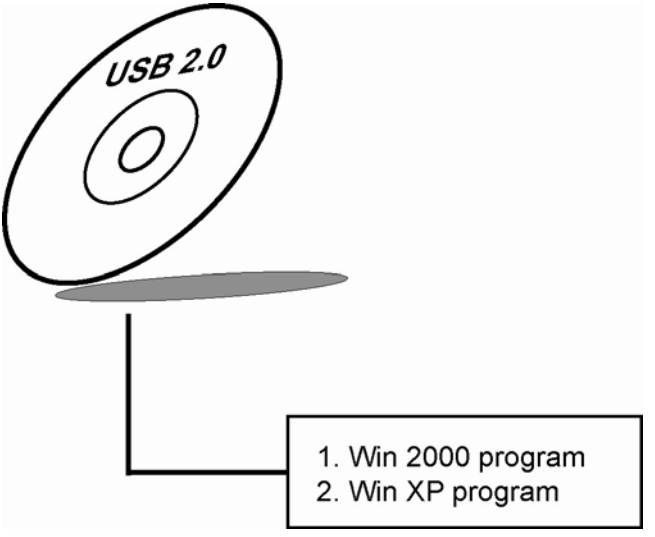
1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 2000/XP/2003 system, go to the directory where Utility Disc is located.
3. Click **Setup.exe** file for utility installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-7. USB2.0 SOFTWARE INSTALLATION UTILITY

3-7-1. Installation of Utility for Windows 2000/XP

Intel USB 2.0 Enhanced Host Controller driver can only be used on Windows 2000 and Windows XP on Intel Desktop boards. It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 2000, and XP system, go to the directory where Utility Disc is located.
3. Start the "System" wizard in control panel. (Click Start/Settings/Control Panel).
4. Select "Hardware" and click "Device Manager " button.
5. Double Click "USB Root Hub".
6. Select "Driver".
7. Click "Install" to install the driver.
8. Follow the instructions on the screen to complete the installation.
9. Click "Finish" after the driver installation is complete.



3-8. WATCHDOG TIMER CONFIGURATION

This board has watchdog timer function for monitoring whether the system is still work or not after a period of time. The user can select watchdog timer to system reset or NMI (Non Maskable interrupt) depending on the jumper set in "Reset/NMI/Clear Watchdog Selection" as described in chapter 2. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, then the system will either reset itself or perform the NMI function. Likewise, when you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

In PSB-601LF watchdog function, You must write your program so when it writes I/O port address 443 for enable watchdog and write I/O port address 441 for disable watchdog. The timer's intervals have a tolerance of 25% so you should program an instruction that will refresh the timer about every second.

The following program shows you how to program the watch timer in your program.

Watchdog enable program:
MOVAX, 000FH(choose the values you need; start from 0)
MOVDX, 0443H
OUTDX, AX

Watchdog disable program:
MOVAX, 000FH(this value can be ignored)
MOVDX, 0441H
OUTDX, AX
The Watchdog Timer control table is as follows:

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	64
2	E	8	10	6	72
3	D	16	11	5	80
4	C	24	12	4	88
5	B	32	13	3	96
6	A	40	14	2	104
7	9	48	15	1	112
8	8	56	16	0	120

AWARD BIOS SETUP

CHAPTER 4

This chapter shows how to set up the Award BIOS.

Section includes:

- Introduction
- Entering Setup
- The Standard CMOS Features
- The Advanced BIOS Features
- The Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configuration
- PC Health Status
- Frequency Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Password Setting
- Save and Exit Setup
- Exit Without Saving

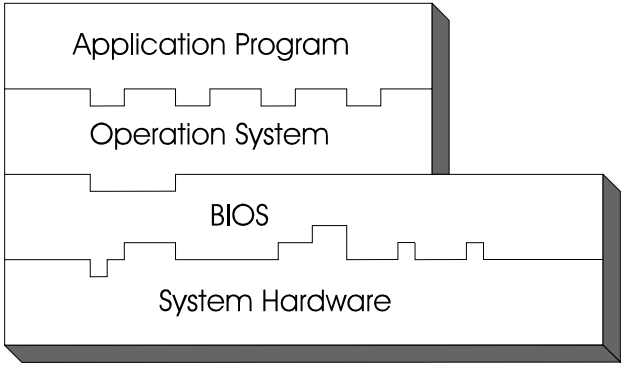
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The PSB-601LF Intel Core 2 Duo Full Size CPU Card is equipped with the BIOS for system chipset from Phoenix -Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

Your application programs (such as word processing, spreadsheets, and games) rely on an operating system such as DOS or OS/2 to manage such things as keyboard, monitor, disk drives, and memory.

The operating system relies on the BIOS (Basic Input and Output system), a program stored on a ROM (Read-only Memory) chip, to initialize and configure your computer's hardware. As the interface between the hardware and the operating system, the BIOS enables you to make basic changes to your system's hardware without having to write a new operating system.

The following diagram illustrates the interlocking relationships between the system hardware, BIOS, operating system, and application program:



4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

PRESS <DEL> TO ENTER SETUP, ESC TO SKIP MEMORY TEST

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Award SETUP program will appear on the screen:

Phoenix - AwardBIOS CMOS Setup Utility

►Standard CMOS Features	►Frequency Control
►Advanced BIOS Features	Load Fail-Safe Defaults
►Advanced Chipset Features	Load Optimized Defaults
►Integrated Peripherals	Set Supervisor Password
►Power Management Setup	Set User Password
►PnP/PCI Configurations	Save & Exit Setup
►PC Health Status	Exit Without Saving
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type ….	

Setup program initial screen

You may use the cursor the up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. THE STANDARD CMOS FEATURES

Highlight the "STANDARD CMOS FEATURES" and press the <ENTER> key and the screen will display the following table:

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Thu, Jun 22 2007	Item Help
Time (hh:mm:ss)	13 : 54 : 47	Menu Level ►
► SATA Channel 1	[HDS728080PLA380]	
► SATA Channel 2	[None]	Change the day, month, year and century
► SATA Channel 3	[None]	
► SATA Channel 4	[None]	
Drive A	[1.44M, 3.5 in.]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	514048K	
Total Memory	515072K	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

CMOS Setup screen

In the above Setup Menu, use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

DATE:

< Month >, < Date > and <Year >. Ranges for each value are in the CMOS Setup Screen, and the week-day will skip automatically.

TIME:

< Hour >, < Minute >, and < Second >. Use 24 hour clock format, i.e., for PM numbers, add 12 to the hour. For example: 4: 30 P.M. You should enter the time as 16:30:00.

SATA CHANNEL 0/1/2/3:

The BIOS can automatically detect the specifications and optimal operating mode of almost all SATA hard drives. When you select type AUTO for a hard drive, the BIOS detect its specifications during POST, every time system boots.

If you do not want to select drive type AUTO, other methods of selecting drive type are available:

1. Match the specifications of your installed SATA hard drive(s) with the preprogrammed values for hard drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the SATA HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefine type are classified as type USER.

- Size: Disk drive capacity (approximate). Note that this size is usually greater than the size of a formatted disk given by a disk-checking program.
- Cyls: number of cylinders.
- Head: number of heads.
- Precomp: write precompensation cylinders.
- Landz: landing zone.
- Sector: number of sectors.
- Mode: Auto, Normal, Large or LBA.

  Auto: The BIOS automatically determines the optimal mode.

  - Normal: Maximum number of cylinders, heads, sectors supported are 1024, 16 and 63.
  - Large: For drives that do not support LBA and have more than 1024 cylinders.
  - LBA (Logical Block Addressing): During drive accesses, the

SATA controller transforms the data address described by sector, head and cylinder number into a physical block address, significantly improving data transfer rates. For drives greater than 1024 cylinders.

DRIVE A:

Select the type of floppy disk drive installed in your system. The available options are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None.

VIDEO:

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. Available Options are as follows:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
MONO	Monochrome adapter, includes high resolution monochrome adapters.

HALT ON:

This category allows user to choose whether the computer will stop if an error is detected during power up. Available options are “All errors”, “No errors”, “All, But keyboard”, “All, But Diskette”, and “All But Disk/Key”.

BASE MEMORY:

Displays the amount of conventional memory detected during boot up.

EXTENDED MEMORY:

Displays the amount of extended memory detected during boot up.

TOTAL MEMORY:

Displays the total memory available in the system.

HARD DISK ATTRIBUTES:

Type	Cylinders	Heads	V-P comp	LZone	Sect	Capacity
1	306	4	128	305	17	10
2	615	4	300	615	17	20
3	615	6	300	615	17	30
4	940	8	512	940	17	62
5	940	6	512	940	17	46
6	615	4	65535	615	17	20
7	642	8	256	511	17	30
8	733	5	65535	733	17	30
9	900	15	65535	901	17	112
10	820	3	65535	820	17	20
11	855	5	65535	855	17	35
12	855	7	65535	855	17	49
13	306	8	128	319	17	20
14	733	7	65535	733	17	42
15	000	0	0000	000	00	00
16	612	4	0000	663	17	20
17	977	5	300	977	17	40
18	977	7	65535	977	17	56
19	1024	7	512	1023	17	59
20	733	5	300	732	17	30
21	733	7	300	732	17	42
22	733	5	300	733	17	30
23	306	4	0000	336	17	10
24	977	5	65535	976	17	40
25	1024	9	65535	1023	17	76
26	1224	7	65535	1223	17	71
27	1224	11	65535	1223	17	111
28	1224	15	65535	1223	17	152
29	1024	8	65535	1023	17	68
30	1024	11	65535	1023	17	93
31	918	11	65535	1023	17	83
32	925	9	65535	926	17	69
33	1024	10	65535	1023	17	85
34	1024	12	65535	1023	17	102
35	1024	13	65535	1023	17	110
36	1024	14	65535	1023	17	119
37	1024	2	65535	1023	17	17
38	1024	16	65535	1023	17	136
39	918	15	65535	1023	17	114
40	820	6	65535	820	17	40
41	1024	5	65535	1023	17	42
42	1024	5	65535	1023	26	65
43	809	6	65535	852	17	40
44	809	6	65535	852	26	61
45	776	8	65335	775	33	100
47			AUTO			

Award Hard Disk Type Table

4-4. THE ADVANCED BIOS FEATURES

Choose the "ADVANCED BIOS FEATURES" in the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

► CPU Feature	[Press Enter]	Item Help
► Hard Disk Boot Priority	[Press Enter]	
First Boot Device	[Hard Disk]	
Second Boot Device	[Hard Disk]	Menu Level ►
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Boot Up Floppy Seek	[Enabled]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

BIOS Features Setup Screen

The "BIOS FEATURES SETUP" allow you to configure your system for basic operation. The user can select the system's boot-up sequence and security.

A brief introduction of each setting is given below.

CPU FEATURE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
CPU Feature

Limit CPUID MaxVal	[Disabled]	Item Help
Execute Disable Bit	[Enabled]	
Virtualization Technology	[Enabled]	Menu Level ►
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. **LIMIT CPUID MAXVAL**
   The CPUID instruction of some CPUs will return a value greater than 3.If you are using Windows operating system. Please disable this feature.
2. **EXECUTE DISABLE BIT**
   To select enable or disable the No-Execution Page Protection Technology.
3. **VITRUALIZATION TECHNOLOGY**
   To select enable or disable Virtualization Technology.

HARD DISK BOOT PRIORITY:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
Hard Disk Boot Priority

1. SATA 1. : HDS728080PLA380 2. Bootable Add-in Cards	Item Help
	Menu Level ►
	Use<↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

Select Hard Disk Boot Device Priority

FIRST/SECOND/ THIRD/ OTHER BOOT DEVICE:

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

BOOT UP FLOPPY SEEK:

You may enable / disable this item to define whether the system will look for a floppy disk drive to boot at power-on, or proceed directly to the hard disk drive.

TYPEMATIC RATE SETTING:

Enable this item if you wish to be able to configure the characteristics of your keyboard. Typematic refers to the way in which characters are entered repeatedly if a key is held down. For example, if you press and hold down the "A" key, the letter "a" will repeatedly appear on your screen on your screen until you release the key. When enabled, the typematic rate and typematic delay can be selected.

TYPEMATIC RATE (CHARS/SEC):

This item sets the number of times a second to repeat a key stroke when you hold the key down.

TYPEMATIC DELAY (MSEC):

The item sets the delay time after the key is held down before it begins to repeat the keystroke.

SECURITY OPTION:

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

🔔 To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

APIC MODE:

To Enable Advanced Programmable Interrupt Controller

MPS VERSION CONTROL FOR OS:

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors.

4-5. ADVANCED CHIPSET FEATURES

Choose the "ADVANCED CHIPSET FEATURES" from the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable	[By SPD]	Item Help
X CAS Latency Time	Auto	
X DRAM RAS# to CAS# Delay	Auto	
X DRAM RAS# Precharge	Auto	Menu Level ►
X Precharge dealy (tRAS)	Auto	
X System Memory Frequency	By SPD	
Memory Hole At 15M-16M	[Disabled]	
** VGA Setting **		
PEG/Onchip VGA Control	[Auto]	
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/ FIXED Memory Size	[128 MB]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

Chipset Features Setup Screen

This parameter allows you to configure the system based on the specific features of the installed chipset. The chipset manages bus speed and access to system memory resources, such as DRAM and the external cache.

It also coordinates communications between conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for the system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

DRAM TIMEING SELECTABLE:

The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

CAS LATENCY TIME:

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

DRAM RAS# TO CAS# DELAY:

This item let you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The choices are 2 and 3.

DRAM RAS# PRECHARGE TIME:

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The choices are 2 & 3.

PRECHARGE DEALY (tRAS):

Precharge Delay This setting controls the precharge delay, which determines the timing delay for DRAM precharge

SYSTEM MEMORY FREQUENCY:

Allow to choose different frequency of memory module.

MEMORY HOLE AT 15-16M:

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements

PEG/ONCHIP VGA CONTROL:

To select the PCI-Express Graphics or onchip VGA Graphics.

ON-CHIP FRAME BUFFER SIZE:

The On-Chip Frame Buffer Size can be set as 32MB. This memory is shared with the system memory.

DVMT MODE:

Intel Dynamic Video Memory Technology Mode.

DVMT/FIXED MEMORY SIZE:

DVMT Memory Size Select.

4-6. INTEGRATED PERIPHERALS

Choose "INTEGRATED PERIPHERALS" from the main setup menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

▶ OnChip IDE Device	[Press Enter]	Item Help
▶ SuperIO Device	[Press Enter]	
▶ USB Device Setting	[Press Enter]	Menu Level ▶
Onboard Lan1 Controller	[Enabled]	
Onboard Lan2 Controller	[Enabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

Integrated Peripherals Setup Screen

By moving the cursor to the desired selection and by pressing the <F1> key, the all options for the desired selection will be displayed for choice.

🔔 If bios setup menu item supports USB device boot, it will cause Win9x detects the same storages twice when the system is rebooted, and USB HDD will fail. Note: this cause just happen under Win9x, the phenomenon is a limitation.

ONCHIP IDE DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
IDE DMA transfer access	[Enabled]	
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	Menu Level ►
IDE Primary Master UDMA	[Auto]	If your IDE hard drive supports block mode select Enabled for automatic detection of the optional number of block read/writes per sector the drive can support.
IDE Primary Slave UDMA	[Auto]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
SATA Mode	[IDE]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Descriptions on each item above are as follows:

1. **IDE HDD BLOCK MODE**
   Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
2. **IDE DMA TRANSTER ACCESS**
   To Enable/Disable the IDE DMA transfer access
3. **PRIMARY MASTER/SLAVE PIO**
   SECONDARY MASTER/SLAVE PIO
   The four IDE PIO fields allow you to set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

4. **PRIMARY MASTER/SLAVE UDMA**
   SECONDARY MASTER/SLAVE UDMA
   Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If you hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.
5. **SATA MODE**
   Set the Serial ATA configuration. When set in Advanced Host Controller Interface (AHCI) or RAID mode, the SATA controller is set to Native mode. Configuration options: [IDE] [RAID] [AHCI]

SUPER IO DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	Menu Level ►
X UR2 Duplex Mode	[Half]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
X ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Descriptions on each item above are as follows:

1. **ONBOARD FDC CONTROLLER**
   Select Enabled if the system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled.
2. **ONBOARD SERIAL PORT 1/2**
   Select an address and corresponding interrupt for the first and second serial ports.
3. **UART MODE SELECT**
   This item allows you to select UART mode.

4. **UR2 DUPLEX MODE**
   This item allows you to select the IR half/full duplex function.
5. **ONBOARD PARALLEL PORT**
   This item allows you to determine access onboard parallel port controller with which I/O address.
6. **PARALLEL PORT MODE**
   Select an operating mode for the onboard parallel (printer) port. Select *Normal, Compatible,* or *SPP* unless you are certain your hardware and software both support one of the other available modes.
7. **ECP MODE USE DMA**
   Select a DMA channel for the parallel port for use during ECP mode.
8. **PWRON AFTER PWR-FAIL**
   This item allows you to select if you want to power on the system after power failure. The choice:Off,On,Former-Sts.

USB DEVICE SETTING:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
Onboard Device

USB 1.0 Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Keyboard Function	[Enabled]	
USB Mouse Function	[Enabled]	Menu Level ►
USB Storage Function	[Enabled]	
*** USB Mass Storage Device Boot	Setting ***	
USB Flash Disk 2.00	[Auto mode]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Descriptions on each item above are as follows:

1. **USB 1.0 CONTROLLER**
   This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

2. **USB 2.0 CONTROLLER**
   Enable the USB 2.0 controller.

3. **USB KEYBOARD FUNCTION**
   Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.
4. **USB MOUSE FUNCTION**
   Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB Mouse.
5. **USB STORAGE FUNCTION**
   Enable the USB Storage Function
6. **USB FLASH DISK 2.00**
   Select USB Flash Disk Type.

ONBOARD LAN 1/2 CONTROLLER:
Enable the LAN controller.

4-7. POWER MANAGEMENT SETUP

Choose "POWER MANAGEMENT SETUP" option on the main menu, a display will be shown on screen as below :

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
Power Management	[User Define]	
Suspend Mode	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-Off]	
Wake-Up by PCI card	[Enabled]	
Resume by Alarm	[Disabled]	
X Date (of Month) Alarm	0	
X Time (hh:mm:ss) Alarm	0 : 0: 0	
		Menu Level ►

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

Power Management Setup Screen

The "Power Management Setup" allows the user to configure the system to the most effectively save energy while operating in a manner consistent with your own style of computer use.

ACPI FUNCTION:

Users are allowed to enable or disable the Advanced Configuration and Power Management (ACPI).

POWER MANAGEMENT:

This item allows the user to select the type or degree of power saving and is directly related to the following modes:

a. HDD Power Down

b. Suspend Mode

SUSPEND MODE:

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

SOFT-OFF BY PWR-BTTN:

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung". The choices are Delay 4 Sec and Instant-Off.

WAKE-UP BY PCI CARD:

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from the soft-off state.

RESUME BY ALARM:

When enabled, you can set the date and time at which the RTC alarm awakens the system from Suspend mode.

4-8. PNP/PCI CONFIGURATION

Choose "PNP/PCI CONFIGURATION" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Init Display First	[PCI Slot]	Item Help
IRQ Resources	Press Enter	Menu Level ►
PCI/VGA Palette Snoop	[Disabled]	
** PCI Express relative items **		
Maximum Payload Size	[128]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

PNP/PCI Configuration Setup Screen

The PNP/PCI Configuration Setup describes how to configure PCI bus system. PCI, also known as Personal Computer Interconnect, is a system, which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

This section covers technical items, which is strongly recommended for experienced users only.

INIT DISPLAY FIRST:

This item allows you to decide to active whether PCI Slot or on-chip VGA first.

IRQ RESOURCES:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
IRQ Resources

IRQ-3 assigned to	[PCI Device]	Item Help
IRQ-4 assigned to	[PCI Device]	
IRQ-5 assigned to	[PCI Device]	
IRQ-7 assigned to	[PCI Device]	Menu Level ►
IRQ-9 assigned to	[PCI Device]	
IRQ-10 assigned to	[PCI Device]	Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture
IRQ-11 assigned to	[PCI Device]	
IRQ-12 assigned to	[PCI Device]	
IRQ-14 assigned to	[PCI Device]	
IRQ-15 assigned to	[PCI Device]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. **IRQ-n Assigned to:**
   You may assign each system interrupt a type, depending on the type of device using the interrupt.

PCI/VGA PALETTE SNOOP:

Leave this field at disabled.

MAXIMUM PAYLOAD SIZE:

To select the maximum payload size of PCI Express devices.

4-9. PC HEALTH STATUS

Choose "PC HEALTH STATUS" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

Shutdown Temperature	[Enabled]	Item Help
Vcore	1.26V	
+1.8V	1.79V	Menu Level ►
+3.3V	3.28V	
+12V	12.03V	
+5V	4.91V	
System Temperature	27 C	
CPU Temperature	33 C	
CPU FAN	2556 RPM	
System FAN	8035 RPM	
Power FAN	0 RPM	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

PC Health Status Setup Screen

The PC Health Status Setup allows you to select whether to choose between monitoring or to ignore the hardware monitoring function of your system.

SHUTDOWN TEMPERATURE:
This item allows you to set up the CPU shutdown Temperature.

VCORE:
This item shows you the current system voltage.

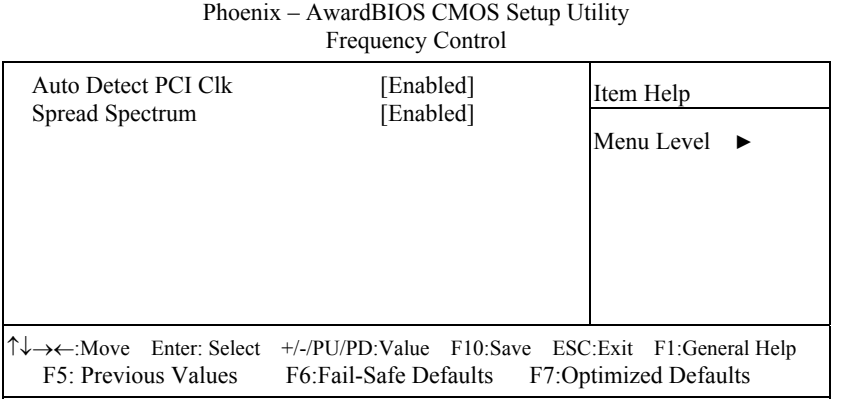
1.8V/3.3V/12V / 5V :
Show you the voltage of 1.8V/3.3V/12V/5V.

SYSTEM/CPU TEMPERATURE:
This item shows you the current System/CPU temperature.

CPU/SYSTEM/POWER FAN:
This item shows you the current CPU/ SYSTEM /Power FAN speed.

4-10. FREQUENCY/VOLTAGE CONTROL

Choose "FREQUENCY CONTROL" from the main menu, a display will be shown on screen as below:


Phoenix – AwardBIOS CMOS Setup Utility
Frequency Control
Auto Detect PCI Clk [Enabled]
Spread Spectrum [Enabled]
Item Help
Menu Level ►
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Frequency / Voltage Control Setup Screen

AUTO DETECT DIMM/PCI CLK:

This item allows you to enable or disable auto detect DIMM/PCI Clock.

SPREAD SPECTRUM:

This item allows you to enable or disable the spread spectrum modulate.

4-11. LOAD FAIL-SAFE DEFAULTS

By pressing the <ENTER> key on this item, you get a confirmation dialog box with a message similar to the following:

```
Load Fail-Safe Defaults ( Y/N ) ? N
```

To use the BIOS default values, change the prompt to "Y" and press the <Enter > key. CMOS is loaded automatically when you power up the system.

4-12. LOAD OPTIMIZED DEFAULTS

When you press <Enter> on this category, you get a confirmation dialog box with a message similar to the following:

```
Load Optimized Defaults ( Y/N ) ? N
```

Pressing "Y" loads the default values that are factory setting for optimal performance system operations.

4-13. PASSWORD SETTING

User is allowed to set either supervisor or user password, or both of them. The difference is that the supervisor password can enter and change the options of the setup menus while the user password can enter only but do not have the authority to change the options of the setup menus.

TO SET A PASSWORD

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press the < Enter > key. You may also press < Esc > to abort the selection and not enter a password.

🔔 User should bear in mind that when a password is set, you will be asked to enter the password everything you enter CMOS setup Menu.

TO DISABLE THE PASSWORD

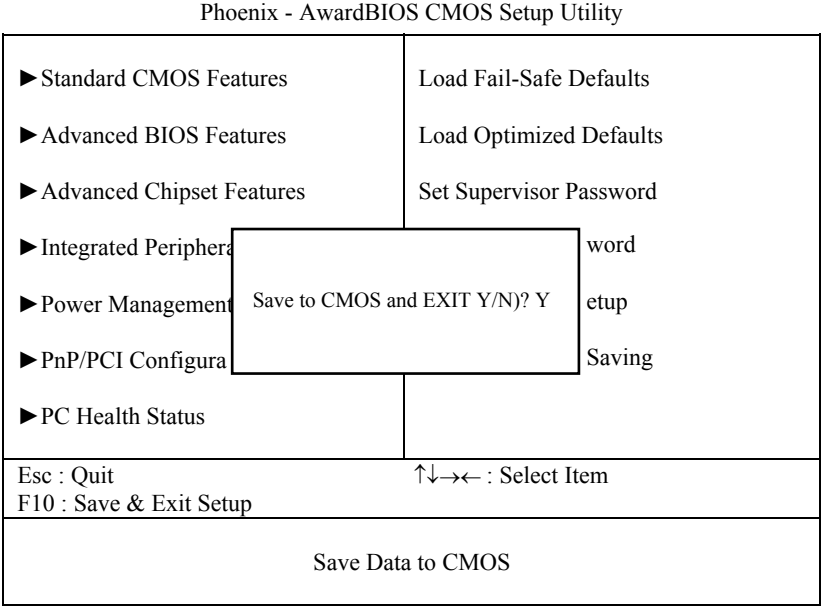
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

PASSWORD DISABLED!!! Press any key to continue...

Press the < Enter > key again and the password will be disabled. Once the password is disabled, you can enter Setup freely.

4-14. SAVE & EXIT SETUP

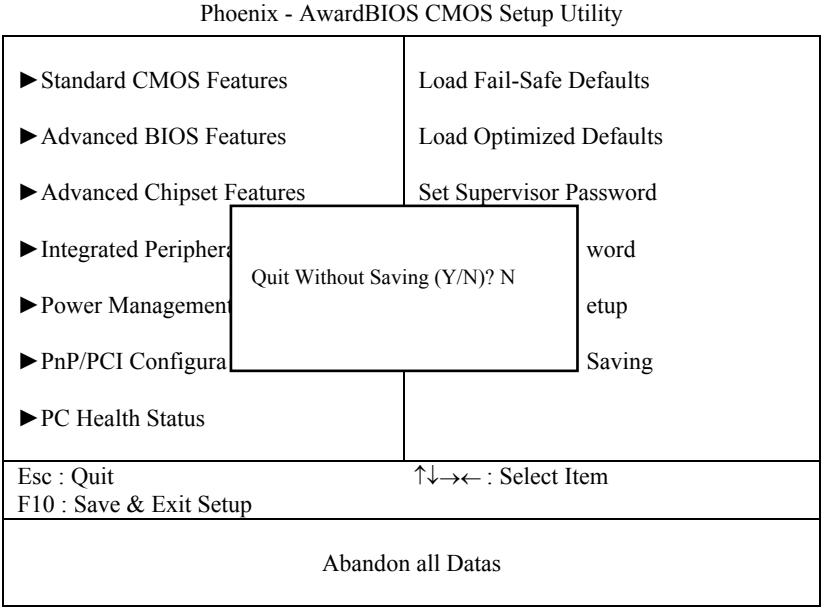
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the <Del> key during boot up.

4-15. EXIT WITHOUT SAVING

If you wish to cancel any changes you have made, you may select the "EXIT WITHOUT SAVING" and the original setting stored in the CMOS will be retained. The screen will be shown as below:



EXPANSION BUS

APPENDIX

A

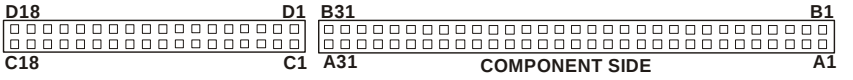
This appendix indicates the pin assignments.

Section includes:

- ISA BUS Pin Assignment
- PCI BUS Pin Assignment
- Compact Flash Card Pin Assignment

ISA BUS PIN ASSIGNMENT

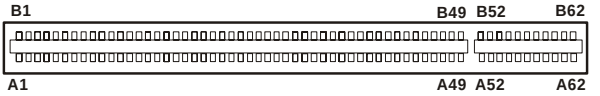
There are two edge connectors (called "gold fingers") on this CPU Card, on the right hand is the connector of ISA Bus, followed up by PCI BUS connector. The ISA-bus connector is divided into two sets: one consists of 62 pins; the other consists of 36 pins. The pin assignments are as follows :



B		A		D		C	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	GND	A1	-I/O CH CHK	D1	-MEMCS16	C1	SBHE
B2	RESET	A2	SD07	D2	-I/OCS16	C2	LA23
B3	+5V	A3	SD06	D3	IRQ10	C3	LA22
B4	IRQ9	A4	SD05	D4	IRQ11	C4	LA21
B5	NC	A5	SD04	D5	IRQ12	C5	LA20
B6	NC	A6	SD03	D6	IRQ15	C6	LA19
B7	-12V	A7	SD02	D7	IRQ14	C7	LA18
B8	OWS	A8	SD01	D8	-DACK0	C8	LA17
B9	+12V	A9	SD00	D9	DRQ0	C9	-MEMR
B10	GND	A10	-I/O CH RDY	D10	-DACK5	C10	-MEMW
B11	-SMEMW	A11	AEN	D11	DRQ5	C11	SD08
B12	-SMEMR	A12	SA19	D12	-DACK6	C12	SD09
B13	-IOW	A13	SA18	D13	DRQ6	C13	SD10
B14	-IOR	A14	SA17	D14	-DACK7	C14	SD11
B15	-DACK3	A15	SA16	D15	DRQ7	C15	SD12
B16	-DRQ3	A16	SA15	D16	+5V	C16	SD13
B17	-DACK1	A17	SA14	D17	-MASTER	C17	SD14
B18	-DRQ1	A18	SA13	D18	GND	C18	SD15
B19	-REFRESH	A19	SA12				
B20	BCLK	A20	SA11				
B21	IRQ7	A21	SA10				
B22	NC	A22	SA09				
B23	IRQ5	A23	SA08				
B24	IRQ4	A24	SA07				
B25	IRQ3	A25	SA06				
B26	NC	A26	SA05				
B27	T/C	A27	SA04				
B28	BALE	A28	SA03				
B29	+5V	A29	SA02				
B30	OSC	A30	SA01				
B31	GND	A31	SA00				

PCI BUS PIN ASSIGNMENT

Like ISA-BUS connector, the PCI-BUS edge connector is also divided into two sets: one consists of 98-pin; the other consists of 22-pin.
The pin assignments are as follows :



B		A		B		A	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	-12V	A1	TRST#	B31	+3.3V	A31	AD18
B2	TCK	A2	+12V	B32	AD17	A32	AD16
B3	GND	A3	TMS	B33	C/BE2#	A33	+3.3V
B4	TDO	A4	TDI	B34	GND	A34	FRAME#
B5	+5V	A5	+5V	B35	IRDY#	A35	GND
B6	+5V	A6	INTA#	B36	+3.3V	A36	TRDY#
B7	INTB#	A7	INTC#	B37	DEVSEL#	A37	GND
B8	INTD#	A8	+5V	B38	GND	A38	STOP#
B9	REQ3#	A9	CLKC	B39	LOCK#	A39	+3.3V
B10	REQ1#	A10	+5V(I/O)	B40	PERR#	A40	SDONE
B11	GNT3#	A11	CLKD	B41	+3.3V	A41	SB0#
B12	GND	A12	GND	B42	SERR#	A42	GND
B13	GND	A13	GND	B43	+3.3V	A43	PAR
B14	CLKA	A14	GNT1#	B44	C/BE1#	A44	AD15
B15	GND	A15	RST#	B45	AD14	A45	+3.3V
B16	CLKB	A16	+5V(I/O)	B46	GND	A46	AD13
B17	GND	A17	GNT0#	B47	AD12	A47	AD11
B18	REQ0#	A18	GND	B48	AD10	A48	GND
B19	+5V(I/O)	A19	REQ2#	B49	GND	A49	AD09
B20	AD31	A20	AD30	B52	AD08	A52	C/BE0#
B21	AD29	A21	+3.3V	B53	AD07	A53	+3.3V
B22	GND	A22	AD28	B54	+3.3V	A54	AD06
B23	AD27	A23	AD26	B55	AD05	A55	AD04
B24	AD25	A24	GND	B56	AD03	A56	GND
B25	+3.3V	A25	AD24	B57	GND	A57	AD02
B26	C/BE3#	A26	GNT2#	B58	AD01	A58	AD00
B27	AD23	A27	+3.3V	B59	+5V(I/O)	A59	+5V(I/O)
B28	GND	A28	AD22	B60	ACK64#	A60	REQ64#
B29	AD21	A29	AD20	B61	+5V	A61	+5V
B30	AD19	A30	GND	B62	+5V	A62	+5V

COMPACT FLASH CARD PIN ASSIGNMENT

You will find a Compact Flash connector in our PSB-601LF. The pin assignments are as follows :

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	26	-CD1
2	D03	27	D111
3	D04	28	D121
4	D05	29	D131
5	D06	30	D141
6	D07	31	D151
7	-CS0	32	-CS11
8	A102	33	-VS1
9	-ATASEL	34	-IORD
10	A092	35	-IOWR
11	A082	36	-WE3
12	+3.3V	37	INTRQ
13	VCC	38	VCC
14	A062	39	-CSEL
15	A052	40	-VS2
16	A042	41	-RESET
17	A032	42	IORDY
18	A02	43	-INPACK
19	A01	44	-REG3
20	A00	45	-DASP
21	D00	46	-PDIAG
22	D01	47	D081
23	D02	48	D091
24	-IOCS16	49	D101
25	-CD2	50	GND

🕮 Because ATA33 cable and ATA66/100 cable pin34 specification are different, therefore, while CF card and other devices are using IDE 1 channel at the same time, the ATA66/100 cable will make the device detecting time expand. Thus, it is suggested to use ATA33 cable to avoid the problem.

🕮 When CF card and other devices are using IDE1 channel at the same time, please refer to “Chapter 4: Award BIOS Setup” to set BIOS in Integrated Peripherals/ OnChip IDE Device/ IDE DMA transfer access/ DISABLED.

TECHNICAL SUMMARY

APPENDIX

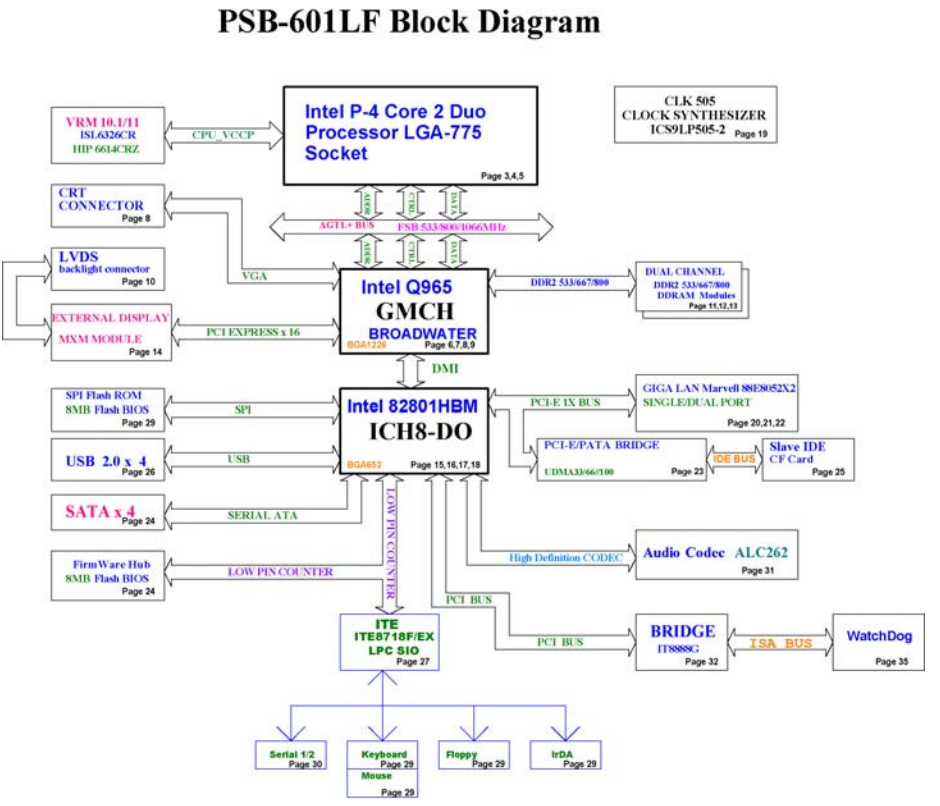
B

This section introduce you the maps concisely.

Section includes:

- Block Diagram
- Interrupt Map
- RTC & CMOS RAM Map
- Timer & DMA Channels Map
- I / O & Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER
1	Keyboard
2	Cascade
3	Serial port 2
4	Serial port 1
5	Available
6	Floppy
7	Parallel port 1
8	RTC clock
9	Available
10	Available
11	Available
12	PS/2 Mouse
13	Math coprocessor
14	IDE1
15	IDE2

RTC & CMOS RAM MAP

CODE	ASSIGNMENT
00	Seconds
01	Second alarm
02	Minutes
03	Minutes alarm
04	Hours
05	Hours alarm
06	Day of week
07	Day of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic status byte
0F	Shutdown byte
10	Floppy Disk drive type byte
11	Reserve
12	Hard Disk type byte
13	Reserve
14	Equipment byte
15	Base memory low byte
16	Base memory high byte
17	Extension memory low byte
18	Extension memory high byte
30	Reserved for extension memory low byte
31	Reserved for extension memory high byte
32	Date Century byte
33	Information Flag
34-3F	Reserve
40-7f	Reserved for Chipset Setting Data

TIMER & DMA CHANNELS MAP

Timer Channel Map :

Timer Channel	Assignment
0	System timer interrupt
1	DRAM Refresh request
2	Speaker tone generator

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	Available
2	Floppy
3	Available
4	Cascade
5	Available
6	Available
7	Available

I/O & MEMORY MAP

Memory Map :

MEMORY MAP	ASSIGNMENT
0000000-009FFFF	System memory used by DOS and application
00A0000-00BFFFF	Display buffer memory for VGA/ EGA / CGA / MONOCHROME adapter
00C0000-00DFFFF	Reserved for I/O device BIOS ROM or RAM buffer.
00E0000-00EFFFF	Reserved for PCI device ROM
00F0000-00FFFFF	System BIOS ROM
0100000-FFFFFFF	System extension memory

I/O Map :

I/O MAP	ASSIGNMENT
000-01F	DMA controller (Master)
020-021	Interrupt controller (Master)
022-023	Chipset controller registers I/O ports.
040-05F	Timer control regsiters.
060-06F	Keyboard interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	Interrupt controller (Slave)
0C0-0DF	DMA controller (Slave)
0F0-0FF	Math coprocessor
1F0-1F8	Hard Disk controller
278-27F	Parallel port-2
2B0-2DF	Graphics adapter controller
2F8-2FF	Serial port-2
360-36F	Net work ports
378-37F	Parallel port-1
3B0-3BF	Monochrome & Printer adapter
3C0-3CF	EGA adapter
3D0-3DF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1